

POMADERRIS LABILL. (RHAMNACEAE) IN QUEENSLAND, 1

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Summary

Pomaderris clivicola is described as new. The remaining Queensland species with indumentum on the upper leaf surfaces, viz *P. prunifolia* Cunn. ex Fenzl, *P. vellea* Wakef., *P. lanigera* (Andrews) Sims and *P. tropica* Wakef. are circumscribed and a key to the above species is given.

Introduction

Little research on the genus *Pomaderris* Labill. has been published since Bentham's (1863) treatment in *Flora Australiensis*. Wakefield (1951) published a preliminary paper to validate names of 16 new Australian species and make three new combinations, but his promised monograph never eventuated. The species enumerated by Wakefield occur mainly in New South Wales and Victoria but five are also found in Queensland. More recently, Walsh (1988, 1989) has begun delineating taxa and clarifying the relationships of species in this genus in southern Australia. However botanists still have difficulty identifying some of the taxa occurring in Queensland due to an apparent intergrading of the characters that have been used to distinguish them in much of the literature. Wakefield (*loc. cit.*) distinguished some of his new species on apparently slight differences, though the distinctions seem to be consistent in southern states. However, in some cases, names that really only apply to species which have a very restricted range in southern areas have been misapplied to Queensland species, and different taxa have been lumped under the one name for convenience.

In Queensland, the genus, with approximately 15 named and four un-named representatives, is not considered to be of any economic importance. Individual taxa are often rare and inconspicuous, being most often associated with rocky or poor areas of low nutrient availability. With such projects as the *Flora of Australia* being undertaken, it becomes timely for the taxonomy of this genus to be clarified. It is on this basis that the current studies are being undertaken, to deal primarily with Queensland species.

In addition to absolute measurements and shape, the characters most commonly used for distinguishing taxa have been the presence or absence of petals and the nature and length of the indumentum, particularly on the leaves and sepals (Wakefield 1951; Willis 1972; Beadle 1980; Ross 1986; Harden, in prep.). Until a phylogenetic study is carried out to clarify relationships, artificial groupings based on gross morphology are the most practical way to recognize and identify taxa. Therefore in this series of papers extensive use is made of these characters, since they are easily visible and measureable, though there is the risk of subjective assessment, particularly with density of indumentum. The indumentum of the species dealt with in this paper is illustrated in **Figures 1** and **2**. This first paper deals with the artificial group of species which have hairs on the upper surface of their leaves; subsequent treatments will deal with those with glabrous upper leaf surfaces.

Most taxa (and all new taxa) dealt with here have been studied in the field. Herbarium specimens from BRI and selected specimens from NE and NSW were studied and the species descriptions were compiled from these. The NSW specimens were obtained on loan after examining NSW's holdings *in situ*. Type specimens from BRI, NSW and MEL were also examined. SEM photographs of the leaf surfaces of *Pomaderris clivicola* were taken to ascertain the nature of the indumentum. Classification of the basic plant structural formations used in the ecological discussions is that of Specht (1981), and that of Webb (1978) is used for closed forest.

Key to *Pomaderris* in Queensland (species with pubescent upper leaf surfaces)

1. Leaf margins toothed; upper leaf surface scabrous with stout, simple or rarely basally divided trichomes, lower with stellate or dendritic trichomes **1. *P. prunifolia***
 Leaf margins entire; upper leaf surface not scabrous, lower with simple trichomes overlying very short, stellate trichomes 2
2. Upper leaf surfaces with a dense, rarely sparse, indumentum of simple trichomes 3
 Upper leaf surfaces with a very dense indumentum of minute stellate trichomes 4
3. Lower leaf surface with a very dense (velutinous) indumentum of simple curly trichomes c. 0.5–0.6 mm long **2. *P. vellea***
 Lower leaf surface with a very dense indumentum of minute stellate trichomes overlain by a moderately dense layer of simple wavy, curly or crinkly trichomes 0.5–2.0 mm long **3. *P. lanigera***
4. Petioles 6–13 mm long; receptacle c. 1 mm long; staminal filaments c. 1.5 mm long; anthers 0.3–0.4 mm long **4. *P. tropica***
 Petioles 2.5–4.5 mm long; receptacle c. 0.5 mm long; staminal filaments 2–2.5 mm long; anthers c. 1 mm long **5. *P. clivicola***

1. *Pomaderris prunifolia* Cunn. ex Fenzl in Endl., Enum. Pl. Hueg. 22 (1837). Type:
 New South Wales ad Bathurst, *Cunningham* (holo: ?W *n.v.*).

Erect shrub 2–3 m tall. Twigs slender, pubescent with translucent and/or ferruginous dendritic trichomes, glabrescent, then bark purplish brown. Leaf laminae ovate, occasionally oblong-elliptic, 16–47 mm × 8–21 mm; apex blunt, obtuse, or toothed appearing acute, base cuneate to rounded, margin toothed; midrib and primary lateral veins sunken above, secondary obscure, midrib raised below, primary veins 6–9 on each side, c. 45° to midrib, raised, generally ending at margin with a tooth, ± straight or slightly looping; scabrous above with stout simple or rarely divided trichomes c. 0.3–0.5 mm long, densely pubescent below with translucent stellate and dendritic trichomes c. 0.3–0.4 mm long and also sparsely to moderately densely covered with ‘stalked’ dendritic trichomes 0.4–0.5 mm long, especially on veins; dull dark green above, pale to ± ferruginous below. Petioles 4–9 mm long, indumentum as for twigs. Stipules very narrowly triangular to ± linear, 3.5–8 × c. 0.5 mm, attenuate, margin membranous, irregularly toothed; pubescent with dendritic trichomes on back. Inflorescences terminal cymose panicles 1–3 cm × 1.5–2 cm; pedicels 1–2 mm long, with indumentum of translucent stellate trichomes; bracts orbicular, 3–4 × 2–4 mm, obtuse, concave, margin membranous, to 1 mm broad apically; receptacle and sepals densely pubescent with translucent stellate trichomes c. 0.3 mm long, and moderately densely pubescent with translucent to occasionally ferruginous simple trichomes up to 1 mm long, denser on receptacle. Receptacle obconical, c. 1 mm long. Sepals c. 1.5–2 mm long, oblong-ovate, acute. Petals absent. Staminal filaments 1.5–2.5 mm long, anthers dorsifixed, 0.75–1 mm long. Style 3-fid, column c. 1 mm long, lobes 0.5–0.75 mm long, stigmatic surface extending along side of lobes; summit of ovary densely pubescent with straight, simple trichomes c. 1 mm long. Capsules 3-valved, obconical, 2.5–3 × 1.5–2 mm, indumentum as for flower, becoming sparser with age; seeds brown, oblong-ovoid, sometimes slightly compressed dorsiventrally, 1.5–2 × c. 1 mm.

Selected specimens: Queensland. DARLING DOWNS DISTRICT: Stanthorpe, Sep 1930, *Westcott* 36 (BRI); Wyberba, Oct 1958, *Hockings* [AQ109689] (BRI); Gully N of Bald Mtn, SW side of Girraween NP, Sep 1974, *McDonald* 449 (BRI). New South Wales. NORTHERN TABLELANDS: Creek below Waa Gorge, Mt Kaputar NP, Oct 1978, *Harden* s.n. (NE); Old Booralong run past Back Ck nr Guyra, Jul 1930, *McKie* W35 (BRI); 18 km SSE of Hillgrove on Long Point Road, Oct 1972, *Williams* s.n. (NE); 19 km by road SSE Hillgrove, Chandler R. Gorge, Oct 1972, *Williams* s.n. (NE). CENTRAL TABLELANDS: Bathurst N.S.Wales, Dec 1825, *Cunningham* 16 (BRI).

Distribution and habitat: Southern Queensland in the Granite Belt (Stanthorpe and Wallangarra areas), south to Victoria; on rocky slopes or the edges of gorges, often along creeks in these areas, in open-forest.

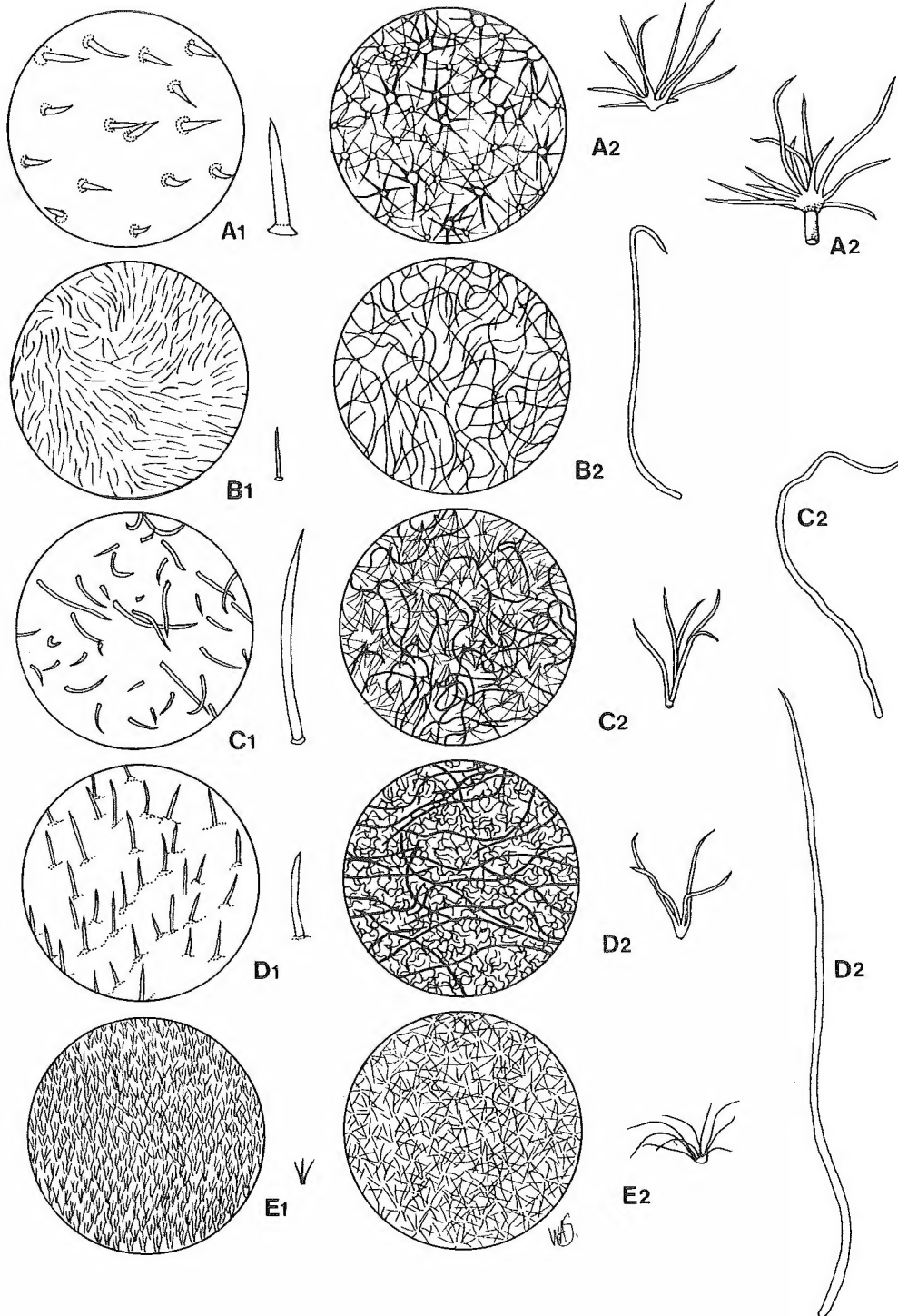


Fig. 1. Trichome types: 1. Upper surface. 2. Lower surface. A. *P. prunifolia*. B. *P. vellea*. C. *P. lanigera*. D. *P. lanigera* form 4. E. *P. tropica*. All surfaces $\times 25$; individual trichomes $\times 50$.

Phenology: Flowers have been recorded from July to October, fruits November and December.

Affinities: This species appears to have no close relatives in Queensland, but seems closest to *P. betulina* Hook., a species which occurs in southern New South Wales and Victoria. *P. prunifolia* is easily distinguished from other species occurring in Queensland by the toothed margins on the leaves, and by the dendritic trichomes on their lower surface.

Conservation status: The species is locally common in rocky habitats, is represented in at least two national parks, and does not appear to be endangered.

2. Pomaderris vellea Wakef., Vict. Nat. 68(8): 142 (sphalm. 141) (1951). **Type:** Torrington, October 1911, *J.L. Boorman* (holo: NSW!; iso: MEL!).

Erect shrub to c. 2.5 m tall. Twigs slender, densely pubescent with simple curly greyish trichomes, often ferruginous near the tip, eventually glabrous and then twigs purplish, lenticellate. Leaf laminae oblong to ovate-oblong, 12–75 × 8–27 mm, apex obtuse, sometimes retuse, usually mucronate, base rounded, margin entire; midrib sunken above, primary lateral veins ± obscure, midrib raised below, primary lateral veins 8–14 on each side, angle to midrib greater than 60°, ± parallel, looping just inside the margin; above densely velutinous with simple, ± straight (occasionally basally divided) translucent trichomes c. 0.2 mm long, below very densely pubescent with simple curly trichomes c. 0.5–0.6 mm long, both translucent and ferruginous; dark dull grey-green above, ferruginous below, darker on the veins. Petioles 5–12 mm long, indumentum as for the twigs. Stipules ovate-oblong to very narrowly triangular, 3.5–5 × 0.75–1.5 mm, acuminate, margin toothed, teeth patent, pubescent on back with white trichomes, longer simple ferruginous ones on keel and margins. Inflorescences dense terminal cymose panicles 2–5 × 3–6 cm; pedicels 1.5–4 mm long, with very dense indumentum of translucent ± straight spreading trichomes 0.5–1 mm long; bracts orbicular, 3–4.5 × 3–4.5 mm, obtuse, margin membranous, up to 1.5 mm wide apically, pubescent on back with simple antrorse trichomes up to 0.5 mm long; receptacle and sepals very densely pubescent with translucent ± straight trichomes 0.6–1 mm long, spreading on receptacle, ± antrorse on sepals. Receptacle obconical, 1.5–2 mm long. Sepals oblong-ovate, 2.5–3 mm long, acute. Petals 2–2.5 mm long, clawed, claw c. 1.2–1.5 mm long, with 1 or 2 trichomes along it, blade obovate to ovate, c. 1 mm long, attached at base of staminal filament, upper margin usually unevenly serrate or minutely erose. Staminal filaments c. 3.5–4 mm long, anthers dorsifixed, 1–1.5 mm long. Style deeply 3-fid, column c. 1 mm long, lobes c. 2 mm long, stigmas ± capitate, extending slightly down one side; summit of ovary densely pubescent with straight, simple mostly ferruginous trichomes 1–1.5 mm long. Mature capsules not seen.

Selected specimens: Queensland. DARLING DOWNS DISTRICT: Stanthorpe, undated, *Bernays* [AQ109731] (BRI); Wallangarra, Sep 1919, *Bell* [AQ109730] (BRI). New South Wales. NORTHERN TABLELANDS: Dangar's Falls nr Armidale, Oct 1971, *Williams* s.n. (NE); Moona Falls area, E of Walcha, Sep 1976, *Williams* s.n. (NE).

Distribution and habitat: Southern areas of the Granite Belt in Queensland south to the Hunter Valley area of New South Wales; generally on rocky outcrops or rocky slopes on shallow soils, in open-forest or open-scrub.

Phenology: Flowers have been recorded from September to November.

Affinities: *P. vellea* could possibly be confused with an obtuse-leaved form of *P. lanigera* which occurs on the Granite Belt in southern Queensland. However it can be distinguished from the latter species by the dense velvety indumentum on the upper leaf surface and the single layer of moderately long curly trichomes on the lower leaf surface.

Conservation status: Although of restricted occurrence in Queensland, it occurs over quite a large area in New South Wales, and can be locally common in suitable habitats. It is not considered to be endangered.

3. *Pomaderris lanigera* (Andrews) Sims, Bot. Mag. 43: t. 1823 (1816); *Ceanothus laniger* Andrews, Bot. Repos. 9: t. 569, col. (1809). **Type:** based on plant cultivated in London, (not preserved; lecto (here designated): H. Andrews, Bot. Repos. 9: t. 569, col. (1809).

Pomaderris ferruginea var. *pubescens* Benth., Fl. aust. 1: 417 (1863). **Type:** Illawarra, *Shepherd* (syn: MEL!).

Erect often multistemmed shrub up to 2 (rarely 3) m tall. Young branchlets ferruginous to greyish pubescent with short stellate translucent trichomes overlaid by wavy or crinkly trichomes 0.7–1(–1.5) mm long, eventually glabrescent and then purplish, lenticellate. Leaf laminae narrowly oblong-ovate, narrowly ovate, oblong or ovate, 21–126 × 9–41 mm, apex acute or occasionally blunt, rarely obtuse, mucronate, base rounded, margins entire or somewhat undulate; midrib impressed above, primary lateral veins visible when dried but not prominent, below midrib raised, primary veins (6–)9–14 on each side of midrib, angle 45–60° to midrib, looping towards margin, sometimes almost parallel, reticulation usually obvious between them; indumentum moderately dense (rarely sparse) above, with straight simple trichomes 0.25–0.5 mm long, very densely pubescent below with short translucent stellate trichomes with a moderately dense to dense (rarely sparse) overlay of longer curly or wavy translucent or often ferruginous trichomes 0.5–1(–2) mm long, particularly on veins. Petioles 4–15 mm long, indumentum as for twigs. Stipules ovate to broadly ovate, 5–8.5 × 3.5–6.5 mm, acuminate tip 1 mm long, margin distantly but regularly toothed, teeth patent, often obscured by hairs on margin, pubescent on back with long simple trichomes on midvein and margin. Inflorescences relatively open, terminal and upper axillary cymose panicles, 2 × 3 cm – 11 × 13 cm, indumentum as for twigs; pedicels (1.5–)2–4 mm long, indumentum dense, of short stellate trichomes and longer white simple trichomes to c. 0.5 mm long; bracts broadly ovate, membranous, 4–5 × 3–3.5 mm, acuminate, margin and back hairy, receptacle obconical, 1–1.5 mm long, indumentum as for pedicel but simple trichomes up to 1(–1.5) mm long, moderately dense; sepals 1.5–2.5(–3.2) mm long, 0.75–1(–1.5) mm wide, yellow inside, whitish pubescent outside with very short dense stellate trichomes and scattered longer simple trichomes 0.5–1(–1.5) mm long; petals yellow, narrowly to broadly spatulate, to fan-shaped, clawed, total 1.5–2(–2.5) mm long, claw 1–1.2(–1.5) mm long, blade 0.6–0.8(–1.5) mm long, margin erose or uneven, claw attached to stamen in lowest 0.2 mm; staminal filaments 2–2.5(–3.5) mm long, anthers dorsifixed, 0.6–1(–1.5) mm long; style 3-fid, united part 1–1.3 mm long, lobes 0.75–1.4 mm long, stigmas club-shaped; summit of ovary pubescent with straight translucent trichomes 0.6–0.8(–1.5) mm long. Capsules obovoid, 3.5–4(–4.5) × 2.5–3 mm; seeds shiny, oblongoid, rounded dorsally, keeled ventrally, 2–2.5 × 1.2–1.5 mm.

Selected specimens: Queensland. LEICHHARDT DISTRICT: Isla Gorge, c. 28 km SW of Theodore, Aug 1973, *Sharpe* 497 & *Hockings* (BRI); Carnarvon Ck, National Park 'Hell-hole Gorge', Jul 1961, *Gittins* 313 (BRI); Blackdown Tableland, c. 35 km SE of Blackwater, Sep 1971, *Henderson* 1032, *Durrington & Sharpe* (BRI; MEL *n.v.*). MARANO DISTRICT: Mt Moffatt, 25°01'S, 147°57'E, Sep 1986, *Williams* 86033 (BRI). BURNETT DISTRICT: 'Manar', 45 km SSE Mundubbera, Sep 1984, *Forster* 1884 (BRI); ditto, Nov 1984, *Forster* 1950 (fruit) (BRI). DARLING DOWNS DISTRICT: 52 km N of Warrego Hwy on Auburn rd, 26°22'S, 150°43'E, Nov 1984, *Rodd* 4174 & *Hando* (BRI,NSW; MEL *n.v.*); Girraween NP nr Wyberba and Wallangarra, Sep 1971, *Ryan* [AQ0003354] (BRI). MORETON DISTRICT: Glasshouse Mts: on Mt Beerwah, Mar 1968, *Smith* [AQ109652] (BRI); 2 km E of Swanbank Power Station, Bundamba, 27°3–'S, 152°43'E, Sep 1984, *Bird* [AQ395632] (BRI); 1 km SW Greenwood Village, Redbank Plains, Oct 1988, *Bird* (BRI); Mt Maroon, Sep 1939, *Goy & Smith* 715 (BRI); Mt Barney, Aug 1931, *White* 7839 (BRI); Nr Picnic Ck and Surprise Rock, Lamington NP, Aug 1960, *Blake* 21357 (BRI). New South Wales. NORTH COAST: Koonyum Ra. 6.4 km W of Mullumbimby, Aug 1973, *Coveny* 5005 (BRI,NSW). NORTHERN TABLELANDS: Gibraltar Ra. c. 74 km NE of Glen Innes, Nov 1967, *Williams* s.n. (NE); Gibraltar Ra. NP, 64 km NE of Glen Innes, Sep 1967, *Williams* s.n. (NE).

Distribution and habitat: Southern and central Queensland, New South Wales and Victoria, usually on sandstone derived or poor sandy or shaly soils, on hillsides or near or along creeklines, or in rocky or heathy areas near cliffs, growing in soils derived from volcanic rock types such as rhyolite and granite.

Phenology: Flowers have been recorded from July to October; fruits have been recorded October to December.

Conservation status: This species is widespread and can be locally common in suitable habitats, and has been recorded in gazetted National Parks, e.g. Carnarvon NP. It is not considered to be endangered.

Notes: The taxon known as *P. lanigera* exhibits a great deal of variation and at least four forms can be fairly easily distinguished:

1. A form which has narrowly ovate acute leaves with a dense overlay of simple wavy trichomes up to 1 mm long, a compact to open inflorescence, floral parts with simple, often crinkly trichomes 0.5–1 mm long, and sepals 2–2.5 mm long. This form is found mainly in coastal southern Queensland, New South Wales and Victoria but has also been recorded from the Stanthorpe district.
2. A form which has narrowly oblong-ovate, narrowly oblong or occasionally oblong leaves with a sparse to moderately dense overlay of simple, often crinkly trichomes up to 1 mm long, an open inflorescence, floral parts with simple trichomes 0.5–1 mm long and sepals 1.5–2 mm long. This form is found mainly in subcoastal southern Queensland to central inland Queensland, e.g. Bundamba, near Brisbane, south-east of Mundubbera and Carnarvon and Isla Gorges, usually on sandstone or poor sandy soils though one locality record mentioned granite derived soils as a substrate.
3. A form which has consistently very short, oblong obtuse leaves, but otherwise with dimensions as for the above forms. This has been found only in the vicinity of Wyberba on the Granite Belt. Other forms have scattered leaves of this shape.
4. A form with ovate acute leaves, distinctly longer simple trichomes on both the lower leaf surfaces (1–2 mm long) and the floral parts (1–1.5 mm long), generally small, compact inflorescences, at least in flower, and larger flowers (sepals 2.5–3.2 mm long) and fruit. This form has been recorded from the volcanic outcrops of southern Queensland, viz Mt Beerwah, Lamington National Park, Mt Barney, Mt Maroon, Crows Nest area, and the Granite Belt, and corresponding areas in New South Wales, such as Gibraltar Range and possibly further south to southern New South Wales.

These forms intergrade somewhat, as the ranges of a number of the traditional distinguishing characters, such as flower size, density of simple trichomes on the lower leaf surface, degree of “curliness” of the simple trichomes, and habitat preference, overlap. However Form 4 has consistently longer indumentum and larger flowers, and is possibly worthy of distinction at varietal rank.

There is, unfortunately, some doubt as to which of these four taxa Andrews’ name correctly applies. The only known element from the original material is the illustration in his *Botanical Repository* which is formally lectotypified here. According to Stafleu and Cowan (1976) “no herbarium specimens [of Andrews’] are known to exist”, and a thorough check of K and BM material failed to locate any under *Ceonothus laniger* or *Pomaderris lanigera* (pers. comm. T. Macfarlane).

Andrews’ illustration certainly matches the material I have included in Form 1, which appears to be the common form in southern Australia. However there is a possibility that plants of Form 4 also occur on volcanic outcrops north and south of Sydney. Both forms could be possible sources of plants, or seeds from which plants were grown, from which Andrews took his specimen to prepare his illustration. In order to correctly apply the name to a particular population, it would be necessary to conduct a thorough study of south-eastern Australian populations, and the history of exploration of the Sydney region during the first 30–35 years of settlement, to ascertain the most probable locality from which Andrews’ material came.

Bentham (1863) cites several syntypes for *P. ferruginea* var. *pubescens*, only one of which I have seen. This name is included in synonymy here on the basis of that specimen.

- 4. *Pomaderris tropica*** Wakef., Vict. Nat. 68(8): 141 (sphalm. 142) (1951). **Type:** Queensland. COOK DISTRICT: Walsh’s Pyramid, N.Q., 7 August 1938, *H. Flecker* (N.Q.N.C. No 5060) (holo: BRI!).

Shrub 2–3 m tall. Twigs slender, pubescent with very short stellate trichomes c. 0.1 mm long overlain by numerous longer simple trichomes c. 0.4–0.5 mm long, glabrescent. Leaf laminae ovate to elliptic, 24–84 × 14–33 mm, apex obtuse, mucronate, very rarely subacute, base cuneate, margin slightly incurved when dry; midrib sunken above, primary

lateral veins generally obscure, midrib raised below, 9–16 primary lateral veins on each side of midrib, at angle of 45–50° to midrib, ± parallel, looping to margin; indumentum above very densely velvety, of stellate trichomes c. 0.1 mm long, below very densely pubescent with curved simple trichomes 0.2–0.3 mm long overlain by a moderately dense indumentum of appressed ± straight simple trichomes 0.5–0.7 mm long, trichomes translucent or with slightly ferruginous pigment in straight trichomes mainly along veins and margins; dull dark green above, undersurface pale creamish, veins darker. Petioles 6–13 mm long, densely pubescent as for twigs. Stipules narrowly triangular, 4.5–5.5 × 1–2 mm, long attenuate, margin regularly toothed, acutely keeled, pubescent on back with ferruginous trichomes, caducous. Inflorescences terminal cymose panicles 2.5 × 4 cm – 4 × 7 cm; pedicels 2–4 mm long; indumentum on pedicels, receptacle and sepals as for twigs; bracts narrowly spatulate, 3–4 × 0.75–1 mm, abruptly acuminate, margin membranous, pubescent on back with simple trichomes. Receptacle obconical, c. 1 mm long. Sepals oblong-ovate, acute, c. 2 × 1 mm. Petals absent. Staminal filaments c. 1.5 mm long, anthers dorsifixed, c. 0.3–0.4 mm long. Style 3-fid, column c. 0.5 mm long, lobes c. 0.5 mm long, stigmas capitate; summit of ovary densely covered with long simple trichomes c. 0.7 mm long. Fruits ellipsoid to ellipsoid-obovoid, 3–3.5 mm long, densely pubescent with mainly long trichomes; seeds matt brown with black at the hilum, ± oblongoid, c. 2.5 × 1.5 mm, rounded dorsally, keeled ventrally.

Selected specimens: Queensland. COOK DISTRICT: Walsh's Pyramid, N slopes, Nov 1954, *Blake* 19768 (BRI; K.MO,PERTH,SP,US *n.v.*); Walsh's Pyramid, 17°12'S, 145°48'E, Sep 1972, *Webb & Tracey* 13781 (BRI,QRS).

Distribution and habitat: Restricted to Walsh's Pyramid, North Queensland, in narrow crevices and drainage lines on exposed rock faces on the sides of the mountain.

Phenology: Flowers have been recorded from August to November; fruits have been collected October and November.

Conservation status: This species has been recorded only from a population at the type locality. The area is included in a National Park. Suggested code is 2RC using the criteria of Briggs and Leigh (1988).

5. *Pomaderris clivicola* E. Ross, *sp. nov.*, differt *P. cinerea* Benth. foliis ovatis, pagina inferna foliorum et sepalis extus trichomatibus longis simplicibus superantibus trichomata brevissima densa, velutina stellata, antheris filamentisque longioribus, et ramis styli glabris; differt *P. tropica* Wakef. foliis parvioribus, pagina inferna foliorum trichomatibus paucioribus simplicibus, sepalis brevioribus, antheris filamentisque longioribus. **Typus:** Queensland. BURNETT DISTRICT: 4.5 km S of Binjour, Humphrey road, 4 January 1990, *P.I. Forster* 6184 (holo: BRI; iso: BRI,CANB,K,MEL,NSW, distribuendi).

Multistemmed shrubs 3–4 m tall; bark tessellated at base; stems ascending, glabrous, purplish brown, lenticels numerous. Twigs slender, densely pubescent with short trichomes c. 0.1–0.2 mm long overlain by numerous simple trichomes c. 0.5 mm long becoming sparser down the twig. Leaf lamina ovate, 15–32 × 6–12 mm, occasionally smaller, apex tapered to a blunt often mucronate point, base cuneate, margin flat to slightly incurved when dry, midrib sunken above, 1–2 pairs of primary lateral veins slightly sunken above, others obscure, midrib raised below, 4–8 primary lateral veins visible on each side of the midrib, at angle of 45–60° to midrib, raised, looping towards margin; indumentum above very dense velvety, of clustered or stellate trichomes c. 0.1 mm long, below very densely pubescent with simple curved trichomes c. 0.2 mm long overlain by a moderate indumentum of simple ± straight trichomes 0.5–0.7 mm long, trichomes translucent or occasionally towards tips of unexpanded leaves, long straight trichomes ferruginous; dull greyish green above, below pale greenish white. Petioles 2.5–4.5 mm long, indumentum as for twigs. Stipules narrowly triangular, 2–3 × 0.6–0.75 mm, acuminate, margin regularly toothed, pubescent along keel on back. Inflorescences small terminal cymose panicles 7–20 × 7–17 mm; pedicels (1–)2–3 mm long, pubescent as for twigs; receptacle and outside of sepals with dense indumentum of short trichomes overlain by moderately dense layer of longer straight trichomes; bracts obovate to broadly obovate, c. 1.5 × 1.2 mm, caducous. Receptacle obconical, c. 0.5 mm long. Sepals yellow to cream inside, oblong-ovate, 1.2–2 × c. 0.75 mm, apex acute. Petals absent. Staminal filaments 1.5–2.5 mm long, anthers dorsifixed, 0.6–1 mm long. Style deeply 3-fid, column c. 1 mm long, branches 0.5–1 mm long, stigmas capitate; summit of ovary densely

pubescent with long simple trichomes. Capsules ovoid, c. 2 mm long, pubescent with dense short and moderately dense long trichomes; seeds \pm ellipsoid, outer side curved more than the inner, c. 2×1 mm. Fig. 3.

Selected specimens: Queensland. BURNETT DISTRICT: MUNDUBBERA 9146-443724, 4.5 km S of Binjour, Binjour Plateau, Dec 1987, *Forster* 3322 (BRI,CANB,K,MEL,NSW); 4.5 km S of Binjour on road to Humphrey, Mar 1988, *Ross* 8802 & *Forster* (BRI).

Distribution and habitat: Known only from the type locality* on the Binjour Plateau, south-eastern Queensland, where it grows on a steep south-facing slope, in red soils, below outcropping rock. The plants form part of the understorey in simple semi-evergreen vine thicket.

Phenology: Flowers were collected December-January after some rain in the area; at other times of the year when the site was visited (March, October, November) only buds were noted. Capsules were recorded January to March.

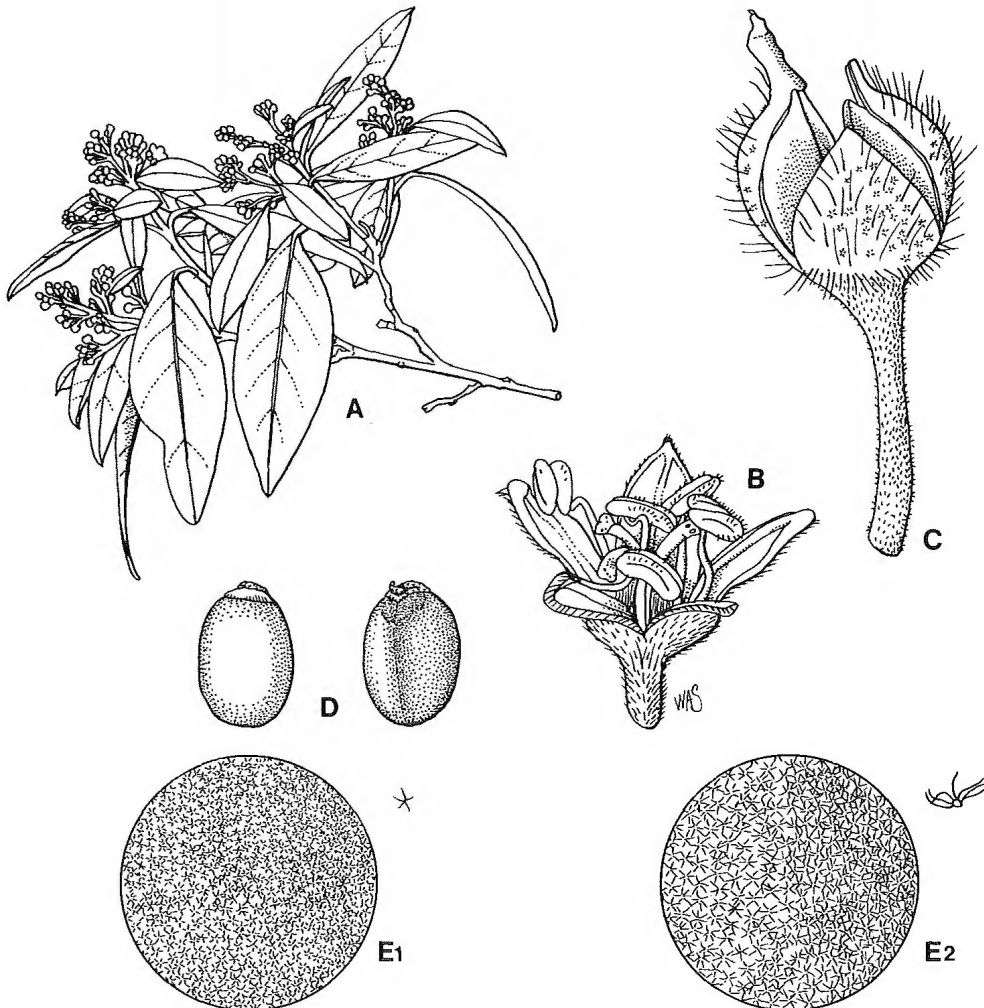


Fig. 2. *P. clivicola*: A. Twig $\times 1.5$. B. Old flower $\times 25$. C. Fruit $\times 12$. D. Seed $\times 25$. E. Trichome types: 1. Upper leaf surface $\times 25$. 2. Lower leaf surface $\times 25$. Individual trichomes $\times 50$. A, *Ross* 8912; B-E, *Ross* 8802 & *Forster*.

Affinities: *P. clivicola* is similar to *P. cinerea* Benth. which occurs only in southern New South Wales, but the latter has elliptic leaves with no long trichomes overlying the short dense curved trichomes on the underside of the leaf, and a pubescent style. The other species which it resembles, *P. tropica* Wakef., has larger leaves, denser indumentum of long trichomes on the lower leaf surface, longer sepals and shorter staminal filaments. There is no overlap in distribution of any of these three species.

Conservation status: To date only one population* of the species has been found, comprising c. 20 plants apparently forming two \pm even-aged groups, a more numerous one of large shrubs 3–4 m tall intermingled with another of shrubs c. 1 m tall. A narrow secondary road cuts through the middle of the population which is currently not protected by legislation. Any road works, particularly widening of the road, could effectively destroy the population. Its conservation status is therefore assessed as 2V using the criteria of Briggs and Leigh (1988).

Etymology: From the Latin '*clivus*' – slopes and '*cola*' – dweller, alluding to the steep hillside on which the species grows.

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* **Note in proof:** A second population of *P. clivicola* has been located WNW of Monto. The specimen citation is S.F. 28, Grid ref. 9048-919493, Apr 1990, *Forster* 6713 (BRI,CBG,MEL). This is c. 110 km NW of the previous locality.